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**Dengue virus serotype 3 infections, Mayotte Island, March–June 2010**

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**Background:** Arbovirus infections represent a permanent threat to the South-West of the Indian Ocean. Outbreaks of dengue have been described on Comoros Islands and Mayotte, a French Island in Indian Ocean. A serosurvey carried out in 2006 in Mayotte confirmed previous circulation of dengue virus (DENV). At that time, 23% of the population had dengue specific IgG antibodies.

**Methods:** Since the set up of a laboratory-based surveillance of dengue-like illness in Mayotte in 2007, no cases of DENV have been confirmed. The surveillance recommends virological testing (Reverse transcriptase polymerase chain reaction (RT-PCR) and serology), for dengue, chikungunya, Rift Valley Fever and leptospirosis for all suspected cases of dengue-like illness, defined as a person with an acute febrile illness (fever  $\geq 38.5^{\circ}\text{C}$ ) AND negative malaria test, WITH at least one of the following: myalgia, arthralgia, headache, hemorrhagic manifestations, retro-orbital pain, digestive manifestations, maculo-papular rash AND in absence of any other infectious diagnostic. Notification of case of dengue leads to an investigation by the vector control team, with epidemiological investigation and mosquito control measures.

**Results:** In response to an outbreak of DENV-3 on Comoros Islands in March 2010 with more than 6000 suspected cases, surveillance of dengue-like illness in Mayotte was reinforced.

By June 17, 46 confirmed cases (RT-PCR) of dengue have been identified in Mayotte, 45 DENV-3 cases and one DENV-1. Among the 41 cases for whom history of travel was known, 19 reported a travel to Comoros and one from French Guyana, and 21 cases were infected on Mayotte. Twenty one more cases were classified as probable dengue fever (suspected case with dengue-specific IgM), of which 18 are autochthonous and 3 are imported cases. None of the cases presented with serious hemorrhagic manifestations and none died.

**Conclusion:** Although recent confirmed cases are mainly autochthonous cases and small clusters of autochthonous cases start to appear, introduction of DENV in Mayotte did not yet cause an epidemic, as it did on Comoros Islands. Possible explanations are the timely mosquito control actions carried out around cases, the end of the rainy season and the predominance of *Aedes albopictus* on the territory in urban settings.

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**Chikungunya surveillance on Réunion Island between 2005 and 2011**

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**Background:** In 2005–2006, Reunion Island was hit by the greatest chikungunya outbreak ever described. A specific surveillance system was set up in order to follow the epidemic. Since the end of the episode, this system is still working and has been evolving. Its objectives are to early detect any case of chikungunya virus infection, and to follow-up the epidemiologic situation.

**Methods:** During interepidemic periods, surveillance is based on active and exhaustive detection of cases. If an epidemic occurs, weekly incidence is estimated through data from a sentinel doctors network. Surveillance of severe forms and mortality is also performed whatever the epidemiologic situation.

**Results:** In 2005–2006, the estimated number of chikungunya virus infections diagnosed in general practitioners clinics was 266 000, i.e. an attack rate of 34%. A total of 222 severe forms and 44 mother-to-child transmissions were identified. Since the end of the outbreak, two clusters occurred in the west of the island in 2009 and 2010. The second one was non-negligible, since 164 cases were identified, of whom 112 biologically-confirmed. No severe illness or death was reported.

**Conclusion:** Due the experience of the past few years and the reemergence of chikungunya virus on Réunion Island in 2010 illustrates the permanent threat of circulation of exotic pathogens in the Indian Ocean and the need for strong epidemiologic and laboratory surveillance. Furthermore, *Ae. Albopictus* mosquitoes have been described as the main vector responsible for transmitting chikungunya virus on Réunion Island, and entomologic surveillance has been reorganized to prevent this risk. According to seven years of surveillance, our surveillance system of chikungunya appeared have good sensitivity and reactivity adapted to detect very early clusters of the disease.

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